

# **RS900/RS901 SERIES V**

## **RS999 FM FLASHBACK™**

**NEW FEATURES!**  
*Timed Crank mode,  
Diesel Delay time, &  
Pos. or Neg. glow  
plug input.*

## **REMOTE ENGINE STARTING SYSTEM**

### **INSTALLATION INSTRUCTIONS**

#### **INTRODUCTION**

Congratulations on your choice of a Crimestopper CoolStart™ remote engine starter! This installation Handbook covers the following models: RS900 V Remote Start & Keyless Entry System, RS901 Upgrade/Expansion module (No remotes or antenna), and the 2-Way RS999FM system with Flashback paging technology.

This installation book is designed for the installer or individual with an existing understanding of automotive electrical systems, along with the ability to test and connect wires for proper operation. *To ease installation, we suggest that you READ THIS MANUAL before beginning your installation. This book is provided as a GENERAL GUIDELINE and the information contained herein may differ from your vehicle.*

#### **DISCLAIMER:**

*Crimestopper Security Products, Inc. and its vendors shall not be liable for any accident resulting from the use of this product. This system is designed to be professionally installed into a vehicle in which all systems and associated components are in perfect working condition.*

#### **TECHNICAL SUPPORT: (800) 998-6880**

Monday - Friday 8:00am - 4:30pm Pacific Std. Time

Web Site: [www.crimestopper.com](http://www.crimestopper.com)

E-mail: [tech-support@crimestopper.com](mailto:tech-support@crimestopper.com)

**CRIMESTOPPER SECURITY PRODUCTS, INC.**  
1770 S. TAPO STREET, SIMI VALLEY, CA. 93063

REV B 09.2002 S/W: RS900V=614, RS999FM=594

This device complies with FCC Rules part 15. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference that may be received, including interference that may cause undesired operation. The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modification could void the user's authority to use the equipment.

## TABLE OF CONTENTS

<i>Pre-Installation Considerations</i> .....	2
<i>Cautions &amp; Warnings</i> .....	3
<i>Wiring</i> .....	3-
6	
<i>Ignition Switch Wiring</i> .....	6-
7	
<i>Power Door Lock Wiring</i> .....	8-
9	
<i>Smart Tachless, Tach Reference, Tach Finder, &amp; Timed Crank Modes</i> .....	9-
12	
<i>Diesel Glow Plug Delay</i> .....	13
<i>Programming Options</i> .....	13-
17	
<i>Transmitter / Transceiver Programming</i> .....	18
<i>2 Vehicle Operation</i> .....	19
<i>Troubleshooting "Before You Call" Section</i> .....	20
<i>Jumper Pin, Antenna, &amp; System Diagrams</i> .....	21-
23	

## PRE-INSTALLATION CONSIDERATIONS

**BEFORE BEGINNING**, check all vehicle manufacturer cautions and warnings regarding electrical service (AIR BAGS, ABS BRAKES, ENGINE / BODY COMPUTER AND BATTERY).

**PLAN OUT YOUR INSTALLATION** and determine most suitable locations for all components to be placed. These components include: the module itself, valet/program button, possible relays, and antenna/receiver (RS900/999FM only, RS901 model does not include antenna or remotes.) Allow enough wire to create a service loop with strain relief, should servicing be required. This will also allow easier access and mounting.

**DAMAGE** to the CoolStart unit resulting from incorrect installation or failure to follow guidelines stated in this book will not be covered under warranty and subject to repair or replacement charges.

**USE A VOLT/OHM METER** to test and locate all connections. Test Lights can damage a vehicle's computer systems.

**ADDITIONAL PARTS**, which are not included with this unit, may be needed for your particular vehicle. . These items may include extra relays or Anti-Theft System Bypass modules.

## INSTALLATION CAUTIONS & WARNINGS

**\*\*FOR SAFETY REASONS, DO NOT INSTALL RS900/901/999FM in vehicles with MANUAL TRANSMISSIONS.\*\*** If accidentally left in gear, a remote started vehicle could become a self-propelled threat to life and property.

**DO NOT** extend the RS900/901/999FM Remote start ignition harness length. Mount the module so that main harness reaches all ignition switch wiring. Extending these wires could result in poor performance.

**DO NOT** route any wiring that may become entangled with brake, and gas pedals, steering column, or any other moving parts in the vehicle.

**DO NOT** exceed the rated output current of any circuit on the Remote start module. Failure to observe this warning will result in damage to the unit not covered under warranty.

**DO NOT** remote start the vehicle in a closed garage. Make sure that the garage door is open or there is adequate ventilation. Failure to observe this rule could result in injury or death from poisonous Carbon Monoxide fumes.

## WIRING: 11-PIN CONNECTOR

### PIN 1: YELLOW/WHITE: (-) HORN CHIRP/HONK OUTPUT

Connect to the Negative Horn Trigger wire usually located near the steering column. If the vehicle horn circuit requires +12V, then a relay is required. RELAY WIRING: Connect the Yellow/White wire to terminal 85, connect relay terminals 86 and 87 to +12V constant power. Connect terminal 30 of the relay to the +12V positive Horn activation wire.

### PIN 2: BLACK: MAIN SYSTEM GROUND

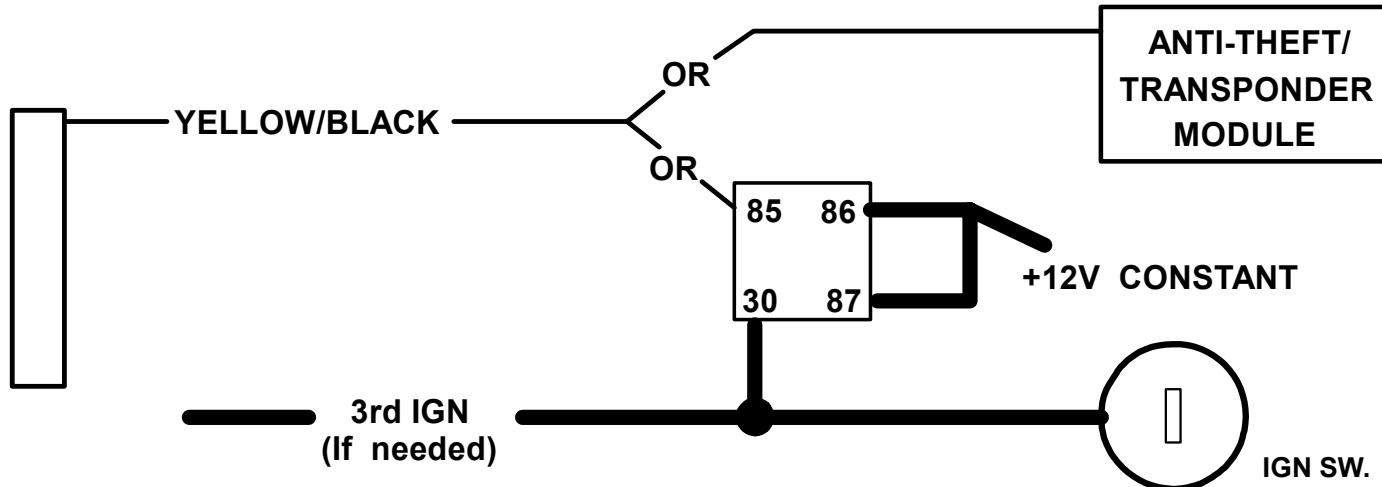
Connect to chassis metal of the vehicle. An existing bolt or screw may provide an adequate ground, or drill a small hole, scrape away paint and attach using a sheet metal screw & star washer. This wire must be connected to a proper ground or undesirable and inconsistent operation will occur. Do not use Factory ground locations.

### **PIN 3: YELLOW/BLACK: (-) IGNITION OUTPUT -or- ANTI-GRIND/STARTER DISABLE OUTPUT**

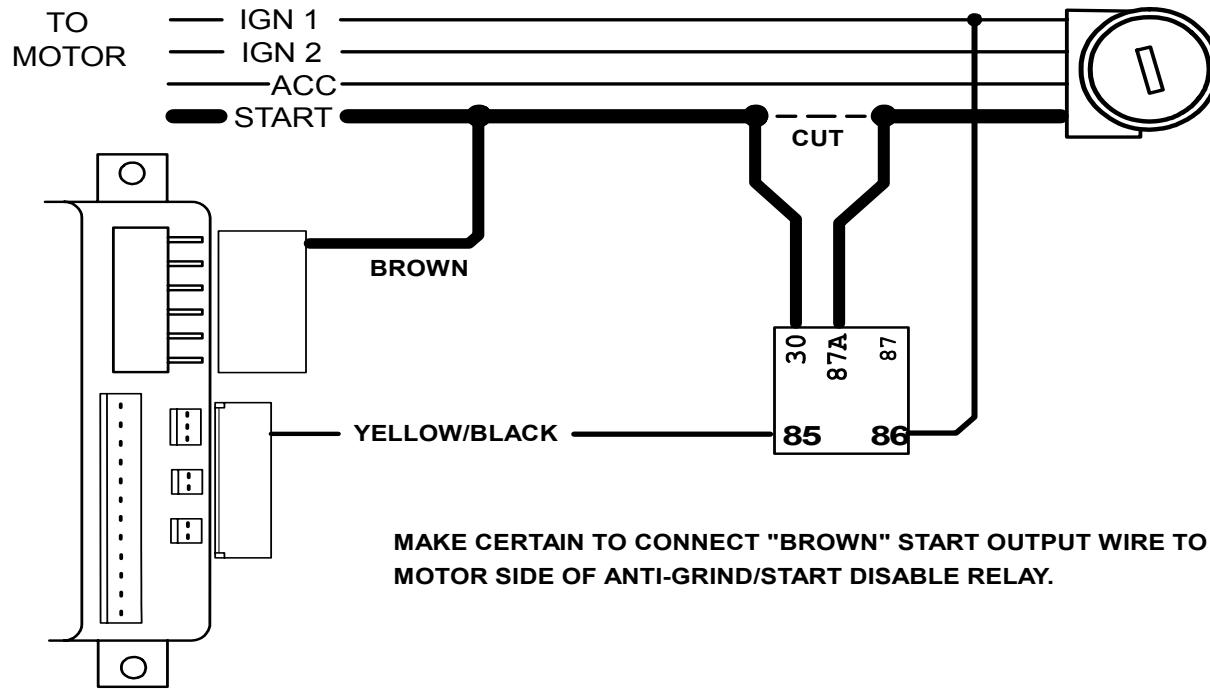
This negative output wire is programmable and can function two different ways. It can be used as a Negative Ignition output for GM Anti-theft and Transponder Bypass modules, or it can be programmed to function as an Anti grind/Starter Disable output. As a Negative Ignition wire, this wire turns on when the remote start button is pressed and stays on through the duration of the remote start. As an Anti grind/Starter disable this wire activates when the Lock button on the remote is pressed and during remote start. When using this wire for an Anti grind/Starter disable, an optional Relay is needed to interrupt the Starter circuit. The starter disable circuit adds an anti-theft feature to this remote start system and to prevent accidental grinding of the starter if key is turned to far after a remote start. See diagrams on NEXT PAGE.

### **WIRING: 11-PIN CONNECTOR**

#### **PIN 3: YELLOW/BLACK FOR NEGATIVE IGNITION OUTPUT: (Relay and/or Module not included)**



#### **PIN 3: YELLOW/BLACK: FOR ANTI-GRIND/STARTER DISABLE OUTPUT: (Relay not included)**



## WIRING: 11-PIN CONNECTOR

### PIN 4: BROWN: (-) AUX OUTPUT (TRUNK POP)

This output will provide a ground pulse when button #3 (Trunk) on the remote transmitter is pushed to activate a factory electric trunk release or other optional accessory. System can also be programmed to DISARM/UNLOCK when trunk pop is activated to prevent unnecessary triggering of Factory Alarm systems. See Programming Options section.

### PIN 5: GREEN: (-) START ACTIVATION INPUT (USED FOR RS901 Add-on/Expansion MODEL ONLY)

This wire allows a host alarm Auxiliary Channel Output or Factory Keyless Entry System to activate a Remote Start by sending a signal to the GREEN wire. A one-second Ground pulse or 3 successive short pulses (when programmed for OEM interface) will trigger a remote start. See Programming Options for OEM interface.

### PIN 6: GRAY: (-) HOOD PIN SWITCH

Connect the Gray wire to a switch that is at ground when the hood is open. If an existing switch is not available, then we recommend that one must be installed. When this wire is grounded, the remote start is inhibited. If hood is opened on a remote started engine, the unit will immediately shut the motor off. The unit will not attempt to start if hood is open.

### PIN 7: PINK: NEGATIVE or POSITIVE DIESEL GLOW PLUG INPUT (DIESEL VEHICLES ONLY)

Connect Pink wire to indicator circuit that shows a (- or +) Signal while the "WAIT TO START LAMP" is on. When this

wire is used, the RS900/901/999FM system will wait until light turns off before attempting a remote start. Note: This input is jumper selectable for Positive or Negative type signals. See system wiring diagram for jumper configuration.

#### **PIN 8: PURPLE: (+12V) BRAKE RESET**

Connect the Purple wire to the side of brake pedal switch that shows +12 volts ONLY when pedal is depressed. This is the wire that turns off the remote start once the driver's key is in the Ignition and turned to the ON position.

#### **PIN 9: ORANGE/BLACK: (-) OEM DISARM OUTPUT**

This wire provides a Ground pulse to disarm the vehicles' Factory anti-theft system prior to a Remote Start. Connect this wire to the vehicles' anti-theft disarm wire. This wire is sometimes found coming off the Driver's door key switch or at the Factory Anti-theft control module. This wire may not be needed if Factory Security only requires a door unlock pulse.

#### **PIN 10: ORANGE: (-) OEM REARM OUTPUT**

This wire provides a ground pulse to rearm the vehicles' FACTORY anti-theft system after a timed-out or aborted remote start. Connect this wire to the vehicles' anti-theft rearm wire or to the door pin circuit depending on your requirements. This wire may be needed to pulse the door pin circuit on vehicles with retained accessory power.

#### **PIN 12: RED/WHITE: TACHOMETER INPUT**

When installing the RS900/901/999FM in Tach mode, this wire must be connected to a valid source of AC voltage. This wire allows the unit to sense the engine running and control the starter motor. See TACH REFERENCE MODE for more.

### **WIRING: 2-PIN LED / 2-PIN PROGRAMMING BUTTON**

#### **PROGRAM/OVERRIDE SWITCH: 2 PIN PLUG**

This switch is used for programming features, transmitters, valet mode, and to override the optional starter disable (if installed) in the event of a non-operating remote control.

#### **LED: 2 PIN PLUG (OPTIONAL)**

The LED is used as a VALET/PROGRAMMING indicator and it will also FLASH for use as security deterrent when the optional ANTI-GRIND/STARTER DISABLE output is programmed.

### **WIRING: 7-PIN HIGH-CURRENT CONNECTOR**

#### **BROWN: +12V STARTER OUTPUT 30A:**

Connect to circuit in the vehicle that has power ONLY during STARTER MOTOR CRANKING.

#### **GRAY: +12V ACCESSORY OUTPUT 30A:**

Connect to circuit in the vehicle that provides Accessory Power for systems such as HEAT and A/C. Typically, this wire turns ON with the first position of the key, DROPS OUT WHEN CRANKING, then returns as the engine starts and runs.

**(2) RED: +12V POWER INPUT WIRES (30A Fused):**

Connect to both of these leads to +12V Constant Power. We recommend the BATTERY POSITIVE TERMINAL.

**PINK: +12V IGNITION OUTPUT 30A:**

Connect to circuit in the vehicle that provides true Ignition Power for systems such as Spark and Fuel. Typically, this wire turns ON with the second position of the key, STAYS ON WHEN CRANKING, and continues ON as the vehicle runs.

**PINK/WHITE: +12V MULTI-FUNCTION OUTPUT 30A (JUMPER SELECTABLE):**

This is an optional multi-function output wire the can be configured as a Second IGN, ACC or STARTER output. Some vehicles require more than just one IGN, ACC, or STARTER wire in order to start and run successfully. If this is the case for your particular vehicle, then use the jumper pin located under the access panel on the top of the CoolStart control module to configure this wire to suit your needs. The DEFAULT setting is IGNITION. See Jumper Pin Diagram.

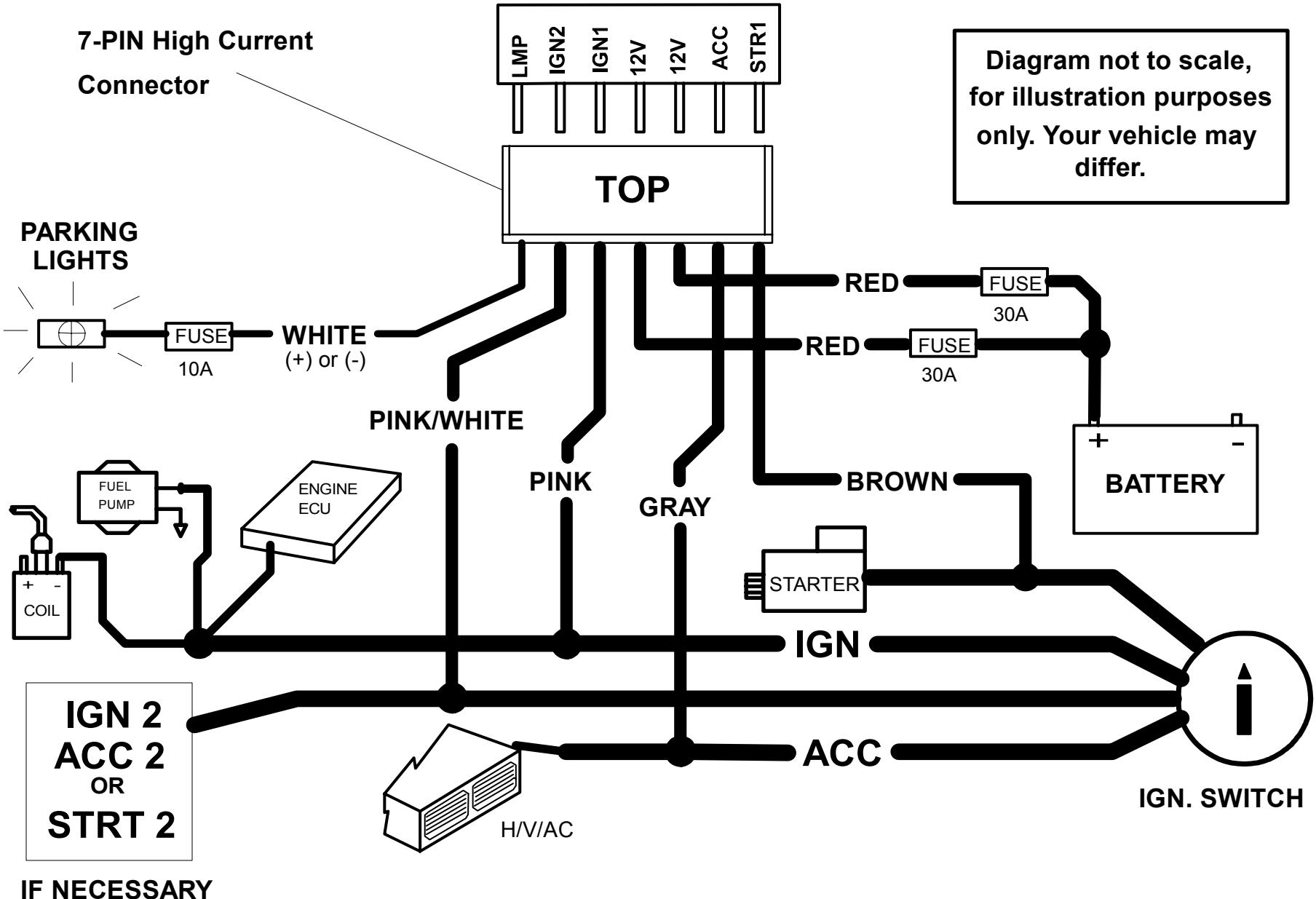
**WHITE: +12V or (-) NEGATIVE PARKING LIGHT OUTPUT:**

Connect to vehicle parking light circuit at the back of light switch or if this is not possible, connect directly to one of the parking lights at the front of the vehicle. If your vehicle has a multiplex lighting system that requires a (-) Negative parking light output, then open the access door on the top of the module and move the jumper. See Jumper Pin section.

Some European vehicles require separate left and right circuits. Use a dual relay or diodes to isolate the output.

**NOTES:** (1) Default parking light output is +12 volts. (2) Use an external relay for vehicles that draw excess current from extra running lights, light bars, or trailers. Parking light output is limited to +10 or -.5 AMPS only.

**WIRING: 7-PIN HIGH-CURRENT CONNECTOR**



**NOTE:** Heavy duty/High Current Ignition circuits greater than 30 AMPS. Industrial vehicles, dual AC, etc. require high-current relays. DO NOT use the outputs of the RS900 for High-Current systems or you will risk damaging the unit and creating a hazardous condition! Use Part #CS-403 relays for circuits up to 70 amps.

**WIIRNG: 3-PIN POWER DOOR LOCK CONNECTOR**

**PIN 1: GREEN:** (-) Negative pulse for LOCK

**PIN 2: RED:** +12V When using external relays (TERM 86)

**PIN 3: BLUE:** (-) Negative pulse for UNLOCK

#### COMMON DOOR LOCK TYPES:

**Negative Trigger (-):** Many Imports, Late Model Ford & General Motors

**Positive Trigger (+):** Many GM, Chrysler/Dodge/Plymouth models:

**Reverse Polarity:** Many Ford/Lincoln/Mercury, Dodge/Chrysler/Plymouth, and some GM Full-size Trucks

**Single Wire Systems:** Late /Chrysler/Dodge/Plymouth models:

95-UP Stratus, Cirrus, Breeze, 96-UP Caravan

Voyager, Town & Country; 90-97 Ford Probe; Mazda

**Semi Automatic:** Older Saab and Volvo, Isuzu, Hyundai

**Electric Vacuum:** Many mid 1980's through mid 1990's European makes

**DETERMINING DOOR LOCK TYPE:** We recommend determining the type of locking system the vehicle has before connecting any wires. Incorrect connection will result in damage to the remote start and/or vehicle locking system.

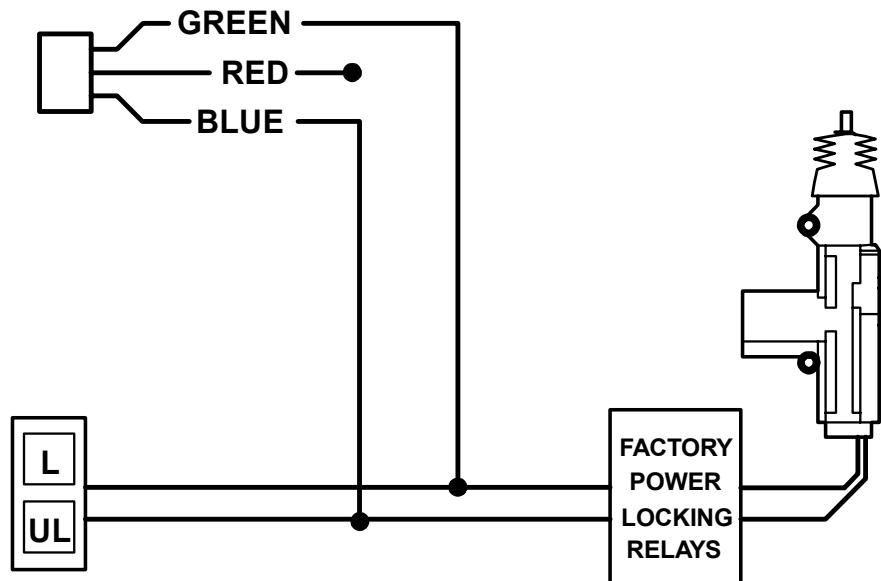
**Crimestopper Doorlock Accessories:**

**CS-6600DLM:** Dual-relay plug-in module for Reverse Polarity, Positive, or Aftermarket Motors.

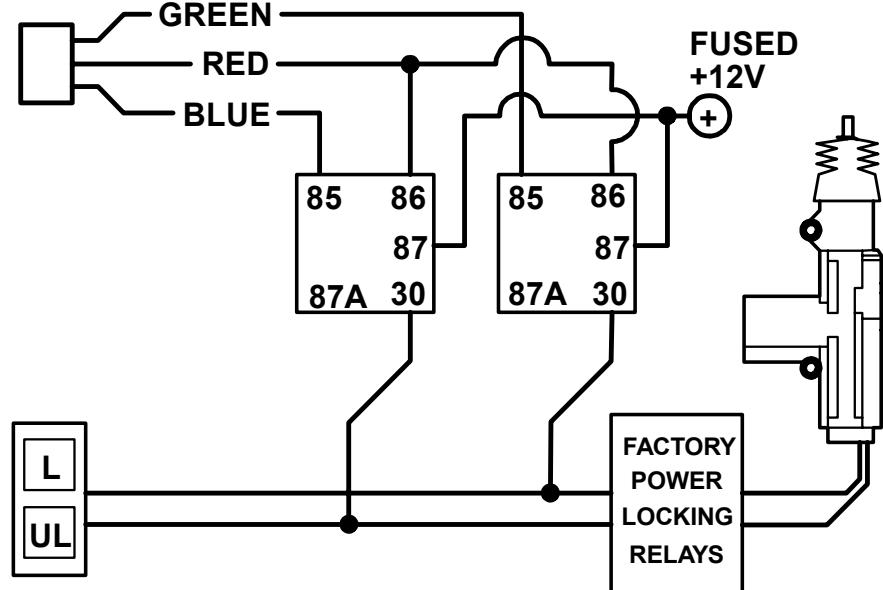
**CS-6500DLI:** Plug-in pulse inverter that converts the Negative outputs of the system to Positive type for Positive Door Lock systems.

**CS-610S1:** Aftermarket door lock actuator (motor).

#### NEGATIVE TRIGGER DOORLOCK WIRING

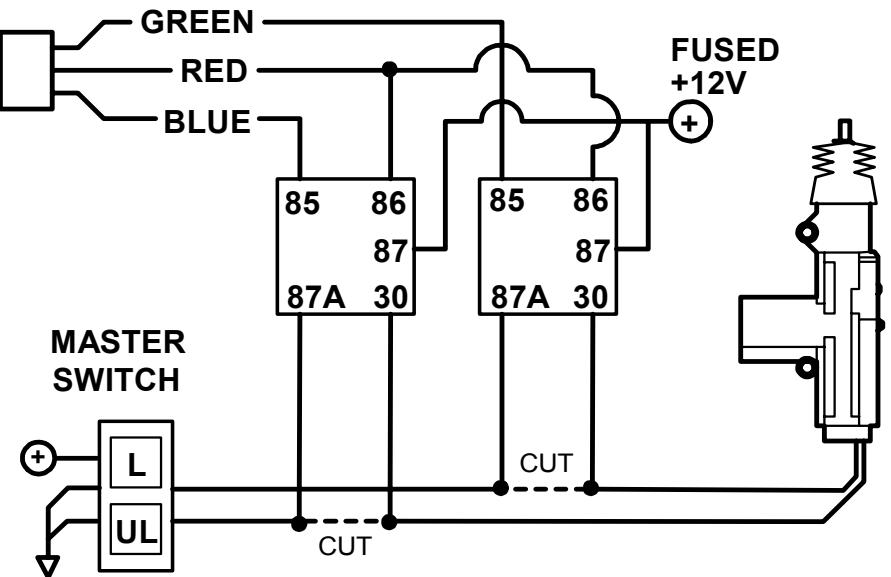


#### POSITIVE TRIGGER DOORLOCK WIRING

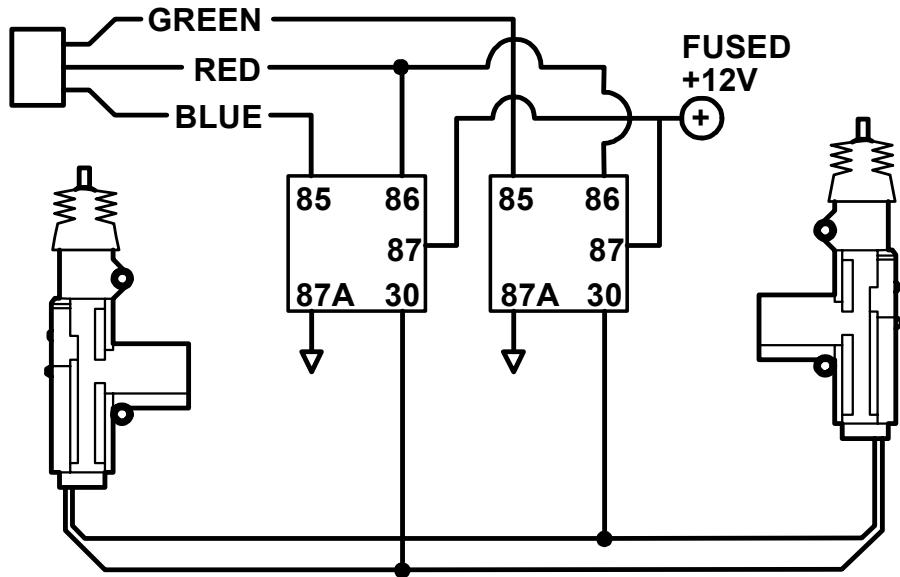


**WIRING: 3-PIN POWER DOOR LOCK CONNECTOR**

### REVERSE POLARITY DOOR LOCK WIRING



### AFTERMARKET MOTOR/DOOR LOCK WIRING



## “SMART TACHLESS” MODE

This RS900/901/999FM systems includes a unique voltage monitor system called “Smart Tachless” mode. This mode allows this unit to efficiently start an engine without the use of a tach signal wire. These modules actively monitor the voltage level of the vehicle to control the starter motor each time a remote start is requested.

### **IMPORTANT NOTES:**

- (1) SETUP may be required for the RS900/901/999FM “Smart Tachless” Mode. If your vehicle has not been at rest for a period of time (Hot engine), then you must drain the surface charge from the battery. Unplug main power harness from unit, turn HEADLIGHTS ON for 4 minutes to drain off excess surface charge on vehicle’s battery then reconnect.
- (2) On the rare occasion that “Smart Tachless” mode does not operate satisfactorily, change the voltage reference level as described on the next page, or use a different mode such as “Tach Reference” mode, or “Timed Crank” mode.

## “SMART TACHLESS” MODE Cont.

## HOW to REDUCE “SMART TACHLESS” CRANKING TIME:

In the event “Smart Tachless” mode slightly over-cranks the starter motor, the settings can be changed. The purpose of adjusting the “Smart Tachless” Mode, is to lower the voltage reference threshold [required by the unit] which reduces the cranking time. There are two settings available: #10 (Lower) and #9 (Lowest). To set the voltage reference level ONE step lower, follow these steps:

1. Open hood (or ground Gray wire if no hood pin is installed)
2. Turn the key to the ON position
3. Press program button 5 times, after a few seconds the unit will flash the lights 5 times.
4. Carefully press the program button 10 times (you must get a light flash after each press.)
5. Press the Lock Button on the remote. Lights will flash once. (For RS901 Models with no remote transmitters, tap the brake once in place of pressing the lock button on the remote)
6. Turn Ignition OFF, Close hood (or un-ground the Gray wire) and check to see if cranking time is reduced.

TO LOWER THE UNIT TO THE LOWEST REFERENCE LEVEL: Repeat steps 1-6 above, however press the program button 9 TIMES in STEP #4.

## TACH (RPM) REFERENCE MODE

**Tach Reference Mode** provides reliable remote starting performance through engine speed (RPM) sensing. When using Tach Reference Mode, the Red/White wire is used for Tach signal [Engine RPM] input. Most modern engines include various points where the Engine Speed [Tach] or A/C signal may be obtained. Tach Signal examples: Negative (-) side of ignition coil, at the Distributor or Ignition Control Module, Coil Pack, Engine Computer, or Crankshaft Sensor. Sometimes Fuel injectors, and Alternator stator pins can be used.

*These Tach Signal locations mentioned are provided as a guide, your vehicle may differ. Some locations will NOT be a good location for Tach source due to RF noise or Computer Data. TACH FINDER mode will assist you in locating a valid tach source. (See Next Page.)*

## TACH FINDER MODE & TACH PROGRAMMING STEPS

## **TACH FINDER MODE:**

This CoolStart system includes a Tach Finder mode to assist in locating a valid or viable tach source for your installation. Follow the Tach Finder steps below to locate and /or verify a tach signal. When following the steps, the unit will begin to flash the parking lights if you have the Red/White wire connected to a valid tach source. If lights do not flash, then try another wire until you locate a tach signal that will cause the Parking lights to flash. NOTE: On some vehicles equipped with daytime running lights, it may be difficult to see any flashing parking lights. In this case your only notification will be the slight “ticking” sound coming out of the module from the on-board flashing light relay.

## **TACH FINDER:**

1. Open hood (or ground Gray hood pin wire if no hood pin is installed)
2. Start Engine with the key.
3. Press the Program button for 2 seconds
4. Lights will begin flashing if the Red/White wire is connected to a valid tach source. If not try a different wire until one is located.
5. Once Tach is located then turn off engine and close hood to abort (Remove Gray wire from ground).
6. See Tach Reference programming.

## **TACH PROGRAMMING:**

1. Open hood (or ground Gray hood pin wire if no hood pin is installed.)
2. Red/White wire should be connected to a valid Tach source.
3. Start engine with key.
4. Press program button 5 times, then wait for 5 light flashes.
5. Push program button again once. (You must get one light flash after button is pressed.) This unit is now at option #1-Tach Learning.
6. Press the #2 Unlock Button on remote transmitter. The unit will read the Tach source and flash the lights twice for program confirmation. (On RS901 IV models without remote transmitters, press the brake pedal in this step.)
7. If lights do not flash twice for confirmation, then try another tach source or try the tach finder to locate another wire.

***NOTE (1): The Tach Signal locations on page 9 are provided as a guide, your vehicle may differ. Some locations will NOT be a good location for Tach source due to RF noise or Computer Data. The RS-900 may not detect a clean signal. If you are unable to locate a Tach Source, use the “Smart Tachless” or “Timed Crank” mode.***

***NOTE (2) The RS900 will operate in “Smart Tachless” Mode [by default] unless a Tach Reference has been programmed. Once a Tach source is programmed, the unit will automatically operate in Tach Mode.***

## **TIMED CRANK MODE**

This new feature provides an easy method of starting the vehicle without locating an exact tach wire. It uses a timed cranking output combined with the use of the Red/White tach wire as an engine ON/OFF monitor. The Red/White Tach wire must still be used in this mode of operation. **THIS FEATURE MUST BE PROGRAMMED BEFORE USE!** THERE ARE 2 LEVELS of programming required: First, set the system for "Timed Crank" operation, and secondly you may need to adjust the amount of cranking time. There are 4 different crank times available for use. SEE OPTION PROGRAMMING CHART FOR SETTINGS.

## **HOW TO USE THIS FEATURE:**

1. Go to the "Programmable Options" section, and turn ON Option #15 "Timed Crank". (It is normally on Tach Monitor)
2. With "Timed Crank" turned ON, you will STILL have to connect the Red/White Tach wire to a tach source on the engine. The Red/White Tach wire becomes a simple "Engine Monitor". Although the unit will not be using the Red/White wire to start the motor, it will be using this wire to determine whether the motor is running or not. This is a mandatory connection. A "crude" or "less exact" tach source can be used only when in "Time Crank" mode.
3. Using the vehicle key, start the engine a few times to get a "feel" of how long the cranking time is. Once the "Timed Crank" mode is turned on, the default cranking time is set to a default of 0.50 seconds. We recommend beginning with this setting. Try a remote start and see if the cranking is appropriate for your vehicle
4. If 0.50 seconds is not an appropriate starter cranking time, then go to Programming Option #16 and change the crank time setting to a longer value. The values are as follows: 0.5, 0.75, 1.25, and 1.5 seconds.

**WARNING: This method of starting the vehicle is not as reliable as using regular "Tach" mode. This method should be used only in the event that a tach wire can not be located using the normal tach programming and tach finder. When using this method, there may be certain operating anomalies requiring seasonal adjustments. These are, but not limited to:**

- Starter may under-crank in extreme cold weather. Vehicle may not start on 1<sup>st</sup> attempt and may require a 2<sup>nd</sup> or 3<sup>rd</sup> try.
- In warm weather when your vehicle may start very quickly, "Timed Crank" mode may tend to over-crank the starter.
- The only way to correct the above issues is to go to Option #16 and adjust the cranking time.
- When in "Timed Crank" mode, the cranking time can only be adjusted manually through option #16. When the RS900/999/901 system is in Smart Tachless or Regular Tach Learning mode, cranking time is adjusted automatically.

## **DIESEL GLOW PLUG DELAY**

This new feature provides a solution for diesel vehicle without having to connect to the Glow Plug-“Wait to Start Circuit”. This may be due to a variety of reasons. If your vehicle does not have a viable “Wait to Start Circuit”, or you cannot locate and identify the circuit, then change your system to “Diesel Glow Plug Delay” mode. You can choose from a selection of “pre-cranking” delay times. Once this mode is activated, the RS-900/901/999 system will NO LONGER monitor the PINK glow plug input wire and will use a delay setting chosen by the installer in the option chart.

NOTES: This feature is OFF by default and must be programmed before use! Once this feature is turned ON, the Pink Glow plug input wire is not used. The Remote start unit will always wait the programmed time before cranking EVEN IF the glow plug warms up first. There are 3 different Delay times available for use: 10, 20, or 30 seconds. SEE OPTION PROGRAMMING CHART.

### **HOW TO USE THIS FEATURE:**

1. See the “Programmable Options” section on Pgs. 13-15 and change Option #18 from "Monitor Glow Plug Light" to one of the delayed time values. (Default setting is to always monitor the PINK Glow Plug input wire.)
2. Once this option has changed the RS-900/901/999 system will wait for the selected time before cranking the engine.

## **OPTION PROGRAMMING**

This system has many installer programmable features as listed in the chart on following pages.

### **To Engage Option Programming:**

1. Open hood (ground the Gray wire if no hood pin switch is installed)
2. Turn Key to the ON position
3. Press program / valet button 5 times, after a few seconds the unit will flash the lights 5 times.
4. Push the valet/program button [again] the number of times that corresponds to the option number desired (1 thru 19). You must get a light flash after each button press. See chart on next page for option list.
5. A) **For RS900/999FM:** When you reach the desired programming level, Press button #1(Lock) or #2 (Unlock) to change the option. (Options 16, 17, and 18 use all 4 transmitter buttons.)
5. B) **For RS901** (No remotes) Tap the brake pedal once to change the option (Same as pressing Button 1 on the remote) or tap the brake pedal 2 times (Same as pressing Button #2 on the remote, 3X = Btn 3, 4X = Btn 4)
6. Turn Ignition OFF, Close hood and check for changed features. Change each option individually repeating #1-5.

## **OPTION PROGRAMMING CHART**

Option #	Option Description	Option Values	Button #1 LOCK	Button #2 UNLOCK
1.	Tach Learning	Tach Reference (Page 10)		Learn Tach
2.	Autolock with Ignition	ON or OFF.	ON	*OFF
3.	Door Lock Pulse Time	0.75 Sec. (Standard) OR 3.0 Sec. (European Vacuum)	3 Sec.	*0.75 Sec.
4.	Double Unlock Pulse	Single or Double Unlock Pulse	Double	*Single
5.	OEM Interface (RS901 MODEL ONLY)	Remote Start w/Single Pulse or 3 Pulses on Green input wire	3 pulse	*1 Pulse
6.	Passive Starter Disable	ON or OFF	ON	*OFF
7.	Horn Chirps on remote start	ON or OFF	ON	*OFF
8.	Lock During and After Remote Start Abort	ON or OFF	OFF	*ON
9.	Smart Tachless Reference Voltage Setting #9	ON or OFF	OFF	*ON
10.	Smart Tachless Reference Voltage Setting #10	ON or OFF	OFF	*ON
11.	NOT USED	NOT USED		
12.	Yellow/Black Wire (-)	(-) IGN output or (-) Anti-Grind	Anti-Grind	*IGN output
13.	Horn Chirp Confirmation with 2 presses of Lock/Unlock	ON or OFF	OFF	*ON
14.	Unlock/Disarm with Trunk pop activation	ON: Trunk Pop & Unlock OFF: Trunk Pop Only	Trunk Pop only	*Trunk Pop & Unlock
15.	Timed Crank Mode or Tach Monitor	Timed Crank: Pre set crank time  Tach Monitor: Use Tach Pulses	Timed Crank	*Tach Monitor
16.	Starter Cranking Time	Button #1 = 0.5 Sec. Button #2 = 0.75 Sec. Button #3 = 1.25 Sec. Button #4 = 1.5 Sec.	0.75 Sec	*0.5 Sec

## PROGRAMMABLE OPTIONS CHART CONTINUED

17	Diesel Glow Plug Delay	Button #1 = 10 Sec. Button #2 = Monitor Glow plug Button #3 = 20 Sec. Button #4 = 30 Sec.	10 Sec.	* Monitor Glow Plug circuit
18.	Remote Start Engine Run Time	Button #1 = 12 Min. Button #2 = 24 Min. Button #3 = 36 Min. Button #4 = 48 Min.	12 Min.	*24 Min.
19.	Option reset	Button #2		Reset Default

## PROGRAMMABLE OPTIONS

### **1. Tach Learning:**

The unit will program the Tach signal from the Red/White wire when button 2 is pressed at this option level. See pages 9-10 Tach Ref/Tach programming.

### **2. Auto Lock/Unlock with Ignition:**

Controls whether the doors will automatically lock when the ignition is turned on and will unlock when turned off.

### **3. Door Lock Pulse Time:**

Controls the amount of time for lock/unlock pulse. The standard setting is 0.75 for most vehicles. A 3 sec. setting is required for 1980's/90's European Vacuum or Pneumatic door lock systems.

### **4. Double Unlock Pulse:**

The unit will send 2 unlock pulses when the #2 Unlock button is pressed. This feature may be required for interfacing this alarm with an existing Factory Keyless Entry or Alarm system in a vehicle. These systems are found on some Nissan, VW, Toyota, and Lexus vehicles.

### **5. OEM Interface (RS901 Add-on Model):**

This option controls this input selection for the Green Negative Start Trigger Wire. When using an Aftermarket Host Alarm or Keyless Entry System: Leave the setting as "1 pulse" and connect the Green wire to the (-) Auxiliary output wire of the Alarm or Keyless Entry System. For Factory Keyless entry systems (without a (-) Negative auxiliary output), change the option to "3 Pulse" and tap the green wire into a Negative signal wire on the vehicle such as a Negative door lock wire. Pressing the Factory remote lock button 3 times will produce 3 short negative signals to trigger a remote start.

## PROGRAMMABLE OPTIONS

### 6. Passive Starter Disable:

**Note: Yellow/Black Negative Output must be programmed as an “Anti-Grind” for this feature. See option 12.**

This option controls the unit's Negative Anti-Grind output allowing it to come on automatically 1 min after the ignition has been turned off. Note if you set this system up for a Passive Starter Disable/Anti-Grind, you must use the remote control UNLOCK button when returning to the vehicle to deactivate it or vehicle will not start with key. This option allows the unit to act as a passive immobilizer.

### 7. Horn Chirps on Remote Start:

This option adds usability to the unit's Negative horn honk/chirp output allowing for an additional 3 short chirps when requesting a remote start via the remote.

### 8. Lock During/After Remote Start:

This option controls whether the unit will automatically lock during and after a remote Start abort or time-out.

### 9. & 10. Smart Tachless References:

These options change the Voltage reference when using “Smart Tachless” mode to reduce crank time. See “Smart Tachless” section for explanation.

### 11. No Option, Not used

### 12. Yellow/Black (-) Negative IGN or ANTI-GRIND Output:

This option controls the units Negative multi-function output. Default: Negative IGN output that turns ON and stays on for the duration of the remote start. Use this wire to turn on Anti-theft bypass adapters for GM or Transponder systems. When changed to an Anti-Grind, this output activates when the Lock button on the remote is pressed and activates during a remote start. Anti-Grind is designed for use with an optional Starter disable relay (Not included).

### 13. Horn Chirp Confirmation with Double Lock/Unlock Press (When Optional Horn Output installed):

This option allows the system to chirp the vehicle horn for Lock/Unlock confirmation when the Lock or Unlock Button on the remote is pressed a 2nd time within 3 seconds.

### 14. Unlock With Trunk Pop:

This option controls whether the system will provide an Unlock/Disarm pulse when the Trunk release is activated from the remote control. This may be required to prevent unnecessary triggering of a factory alarm on some vehicles.

### 15. Timed Crank Mode or Tach Monitor:

This option controls whether the system uses a tach wire to control the starter or uses a pre-set starter cranking time.

## PROGRAMMABLE OPTIONS

### 16. Pre-Set Starter Cranking Time: (Requires Option #15 in “Timed Crank” Setting)

This option controls the starter output cranking time. Choices are 0.5, 0.75, 1.25, or 1.50 seconds.

### 17. Diesel Glow Plug Delay:

This option controls the system's Diesel vehicle interface. Using this option you can control whether the unit monitors the vehicle's glow plug circuit using the Pink input wire (Default), or you may select a specific delay time before cranking. This option is helpful if you are unable to locate a glow plug signal. Just select a delay time and do not connect the Pink Glow Plug wire. Selections: 10, 20, 30 seconds, or Monitor Pink Wire (Default).

### 18. Remote Start Run Time:

This option controls the engine run time for remote start. Choices are 12, 24, 36, or 48 minutes.

### 19. Option Reset:

See “Programmable Option Reset” Section below

## PROGRAMMABLE OPTION RESET

This system provides a “reset method” to restore all options to FACTORY DEFAULT VALUES as listed in the “Button #2” column of the programmable option chart. This can be helpful if you have lost track of the option settings on your system or when you are moving systems from car to car.

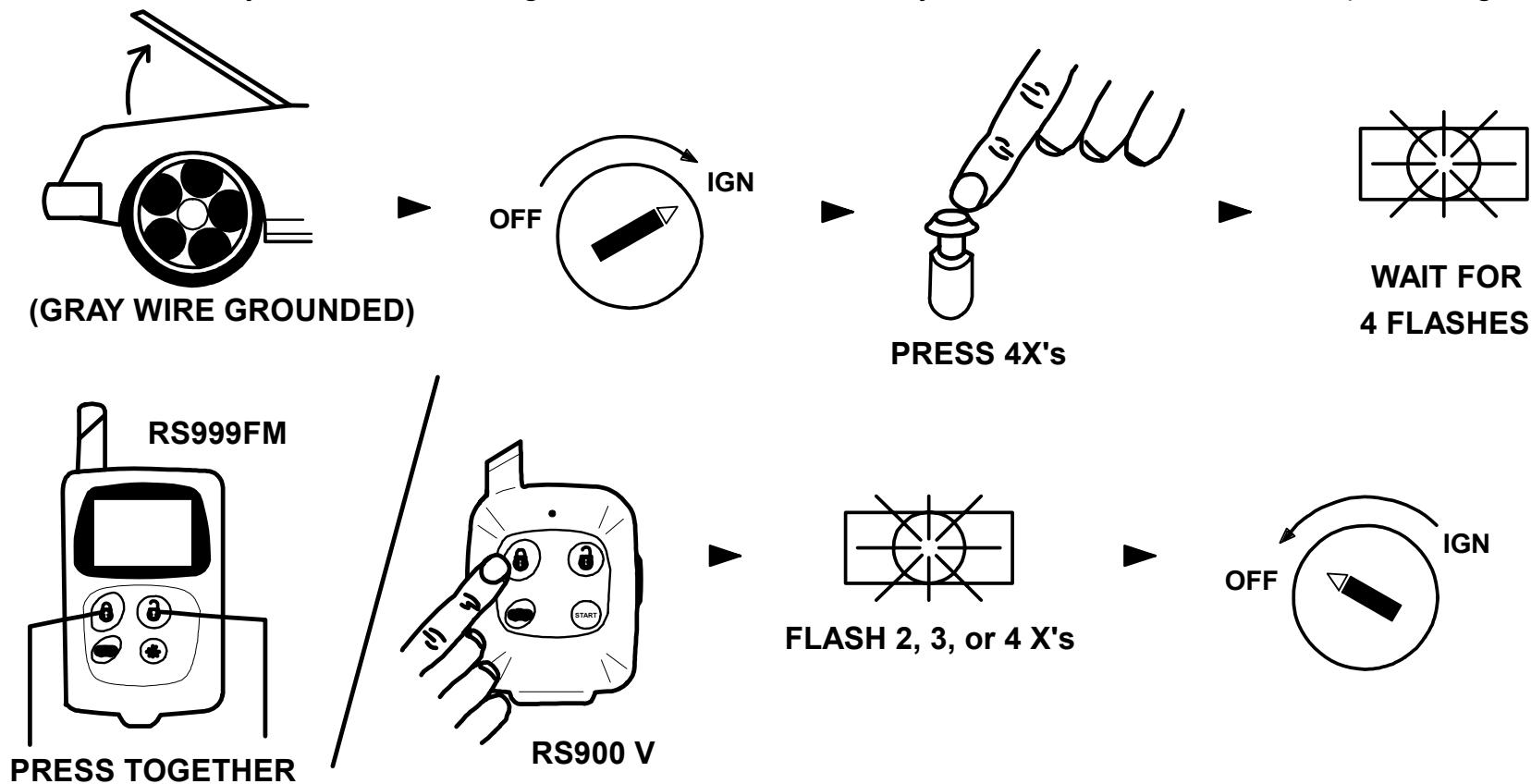
1. Open hood (ground the Gray wire if no hood pin is installed)
2. Turn Key to the ON position
3. Press program / valet button 5 times, after a few seconds the unit will flash the lights 5 times.
4. Push the valet/program button 19 times. Press carefully, do not lose count! You must get a light flash each time you press the button. If the unit didn't flash the lights, then it did not register your press.
5. A) **For RS900/999FM:** Press button #2 (Unlock) to reset the options.
6. B) **For RS901** (No remotes) Tap the brake pedal 2 times (Same as pressing Button #2 on the remote since a 901 system has no remotes).
7. Turn Ignition OFF, Close hood (un-ground gray wire). Optional features should be set at DEFAULT values.

# 900 V TRANSMITTER / 999FM TRANSCEIVER CODE LEARNING

Transmitter/Transceiver Code Learning: (Excludes RS901)

**Note: Remote Transmitters/Transceivers come pre-programmed from the Factory. When re-learning remotes or adding remotes, ALL your system's remote codes must be learned at time of programming!! These systems allow storage of up to 4 different remote codes in memory.**

1. Open hood (ground the Gray hood pin wire if no hood pin is installed.)
2. Turn key to the ON position. (Starting the vehicle is not necessary.)
3. Press Program/Valet button 4 times. After a few seconds, the unit will flash the parking lights exactly 4 times.
4. RS900: Press Button #1 (Lock) of the transmitter to be learned. RS999FM: Both the *Lock & Unlock* button must be pressed. You should get 2 light flashes indicating the code-learn. Now the unit is waiting for a 2<sup>nd</sup> code, so repeat this step as needed with up to 3 additional remotes. The unit will flash the lights in succession after each code learned for up to 4 codes. (2 flashes for the 2<sup>nd</sup> code, 3 flashes for the 3<sup>rd</sup> code etc.) If all 4 codes are learned, the unit will automatically exit code learning mode, otherwise turn key OFF and close the hood. (See Diagram Below)



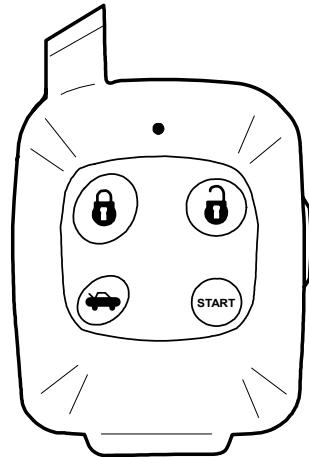
## 2-VEHICLE OPERATION

Both the RS-900 V and RS-999FM systems can be used for 2 car operation. A single RS900V remote can control two independent vehicles with RS900 V systems installed. A single RS-999FM transceiver remote can operate two independent cars with RS-999FM systems installed.

**NOTE: These systems ARE NOT interchangeable. An RS-900 system CANNOT operate an RS-999FM and vice versa!**

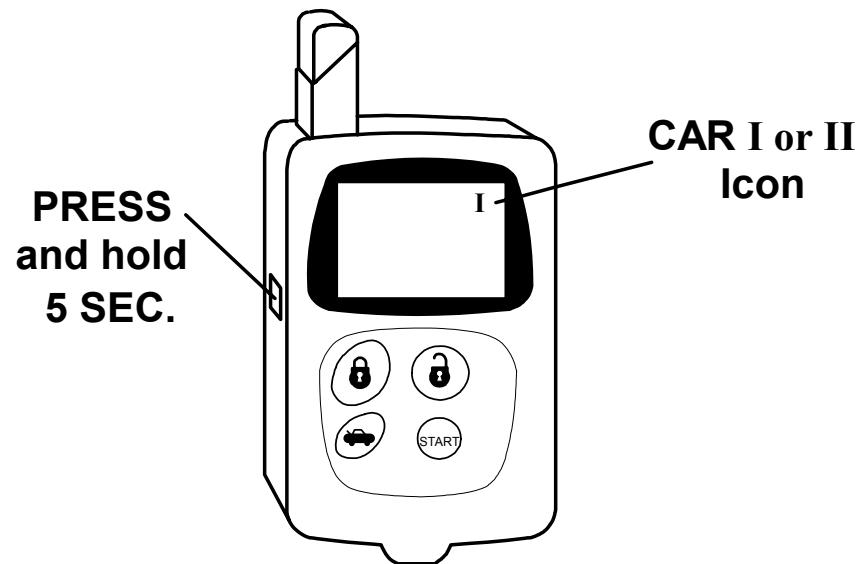
See diagram below on how to switch your remote to car 2 operation. Once you switched your remote to Car 2, then follow the transmitter programming steps on the second vehicle and learn YOUR remote, along with Car #2's existing remotes.

### CAR I / CAR II OPERATION



**CAR I**  
↑  
**Slide**  
↓  
**CAR II**

**RS 900 V**



**RS 999 FM**

## TROUBLESHOOTING: “BEFORE YOU CALL” SECTION

### **UNIT WILL NOT ATTEMPT A START (KEYLESS ENTRY FUNCTIONS NORMALLY):**

The unit is in Valet mode. Turn IGN ON, press and hold valet/programming button for about 6 seconds then turn key off. Unit is now out of valet mode and should perform a remote start. If optional LED is installed, then it will be on solid when in Valet.

### **UNIT FLASHES LIGHTS ONCE AND WILL NOT ATTEMPT A START:**

The unit senses a fault at the Brake (Purple wire is active) or the Hood is OPEN (Gray wire grounded). This is a safety feature of the unit. Check installation for faults and make sure hood is closed and latched and brake wire is not active.

### **UNIT CRANKS VEHICLE BUT ENGINE NEVER STARTS: (2 parts)**

1. In some vehicles, there may be a Factory anti-theft system that will not allow the engine to run without the key in the ignition. These systems may include Factory Security Modules, GM Passkey®/Passlock®, and RF Transponder systems (Ford P.A.T.S.®). Many late 1990's and later vehicles include some type of Anti-Theft system which may require a bypass module.
2. The vehicle may have more than one Ignition/or Accessory circuit that requires power for the vehicle to start. This is common on some GM/Toyota vehicles.

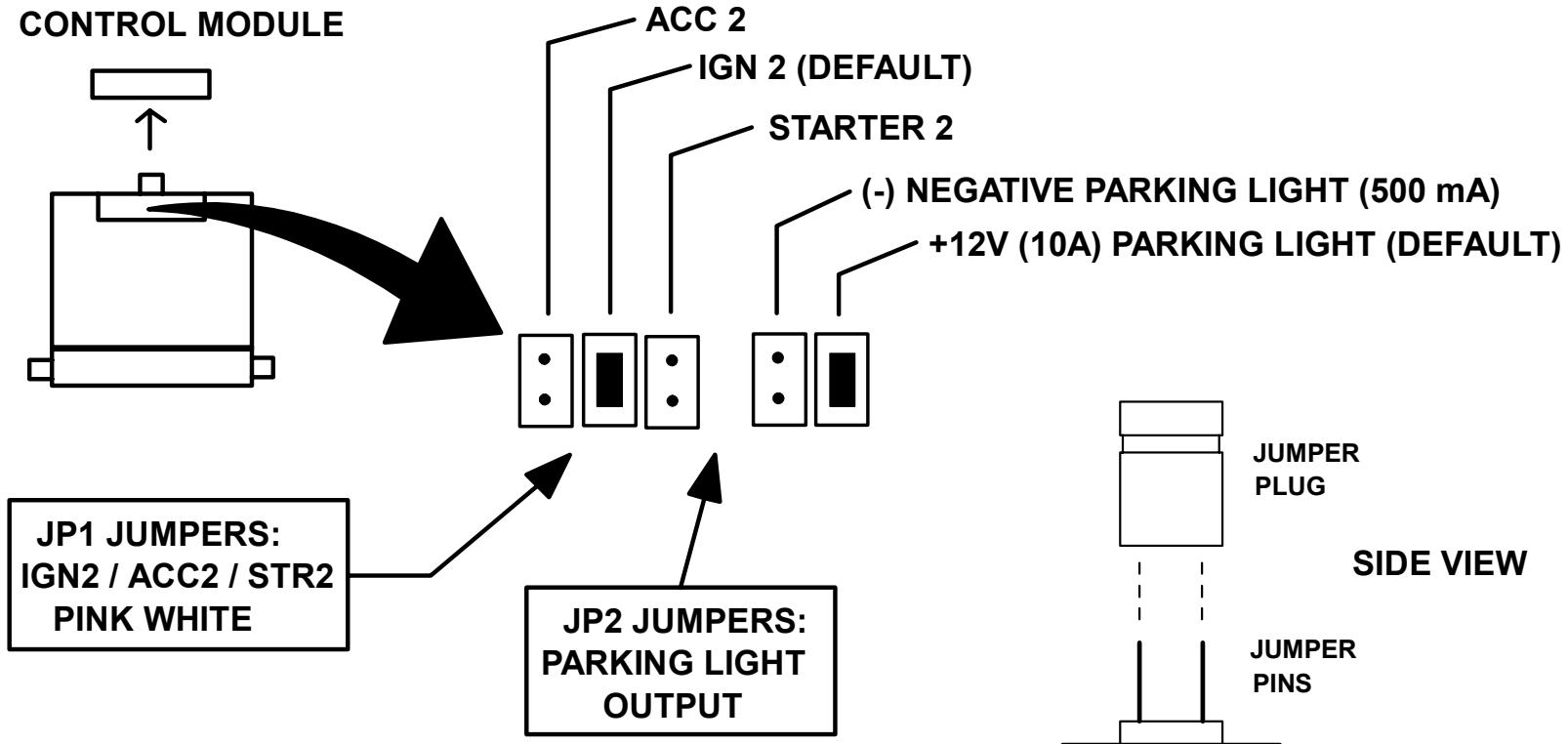
### **VEHICLE STARTS BUT CHECK ENGINE LIGHT COMES ON OR ENGINE RUNS BADLY: (2 parts)**

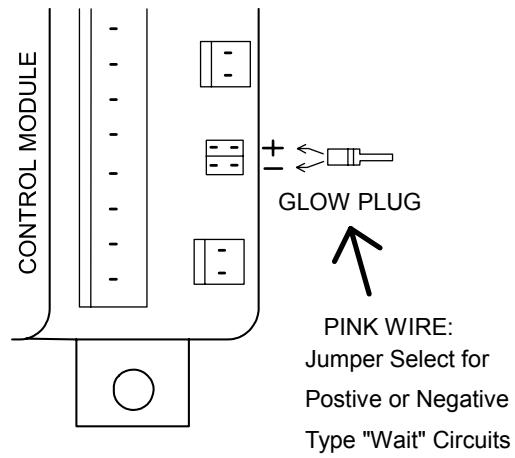
1. Many 1990-UP General Motors cars/trucks require a secondary ignition circuit for the Transmission computer and other on board systems. If the vehicle is started without this wire energized, there may be a “Check Engine” or “Service Engine” light on the dash. This may cause damage if the vehicle is driven in this condition. Be sure to check for and additional WHITE (or sometimes GREEN) Ignition wire on GM cars and trucks. Connect the Pink/White IGN#2 wire to this circuit in the vehicle.
2. Some Vehicles (Commonly Nissan) require 2 Start (Cranking) circuits for the vehicle to run properly. If this is the case, then use the PINK/WHITE output of this system to power the Starter #2 circuit of the vehicle. See Jumper pin diagram for configuration. Note that the secondary starter wire may be a smaller gauge wire than the primary starter wire.

### **NO RESPONSE FROM REMOTE TRANSMITTER (RS900/999FM):** Antenna must be plugged in (3 pin black plug on side of module).

## JUMPER PIN DIAGRAMS

Jumper pins are used to change/configure the operation of the on board multi-function output PINK/WHITE wire, the Parking Light WHITE wire and the PINK glow plug input wire. See the diagrams below for Jumper Pin configurations.





## ANTENNA DIAGRAM

